

Notice of Allowability

Application No.

10/020,976

Examiner

William C. Vesperman

Applicant(s)

FUKAYAMA, NORIHISA

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/26/2004.
2. ☒ The allowed claim(s) is/are 25-34.
3. ☒ The drawings filed on 3/10/2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 6/28/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. This action is in response to applicant's reply July 26, 2004.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Hung Bui on 8/2/2004.

3. Claims 1 – 24 are cancelled.
4. Replace Claims 25 - 34 with revised Claims 25 - 34 as shown below.

25. A liquid crystal display device comprising:

- a liquid crystal panel;
- a backlight which includes at least one optical sheet;
- a mold frame which holds the at least one optical sheet to be opposite to one of main surfaces of the liquid crystal panel in an opposed manner; and
- a metal frame which is fixed to the mold frame to form a picture frame exposing an effective display area of another of the main surfaces of the liquid crystal panel;

wherein the at least one optical sheet is extended along a first direction and a second direction which is transverse to the first direction, has a first side thereof extended along the first direction and a second side thereof extended along the second direction, has a projecting portion protruded from the first side thereof in which a first

opening is formed and a projecting portion protruded from the second side thereof in which a second opening is formed;

wherein the mold frame has a side wall formed at a first periphery thereof, a recessed portion formed in the side wall, and a first columnar member provided in the recessed portion, the projecting portion of the at least one optical sheet being inserted into the recessed portion so that the first columnar member passes through the first opening of the at least one optical sheet;

wherein the mold frame has a second columnar member provided at a second periphery thereof through which the second opening of the at least one optical sheet passes;

wherein the first opening of the at least one optical sheet has a shape which enables the at least one optical sheet with respect to the mold frame to pass the first columnar member through the first opening; and

wherein the second opening of the at least one optical sheet has a length which is extended longer in the first direction than a length in the second direction so as to hold the at least one optical sheet with respect to the mold frame by passing the second columnar member through the second opening loosely in contrast to the first opening.

26. A liquid crystal display device according to claim 25, wherein the at least one optical sheet is one of at least one light diffusion sheet and at least one prism sheet.

27. A liquid crystal display device according to claim 25, wherein the at least one optical sheet includes at least one light diffusion sheet and at least one prism sheet.

28. A liquid crystal display device according to claim 25, wherein the first columnar member is integrally formed with the mold frame.

29. A liquid crystal display device according to claim 25, wherein the second opening is formed in one of an elliptical shape, an oblong shape, a polygonal shape, and a slit-shape which has a length extended longer in the first direction than a length of the first opening.

30. A liquid crystal display device according to claim 25, wherein the first columnar member is extended so as to face a side surface of the liquid crystal panel, and controls the liquid crystal panel to a given position.

31. A liquid crystal display device according to claim 25, wherein the projecting portion is seated in the recessed portion and is fixed to the mold frame by an adhesive tape while the first columnar member is inserted into the first opening.

32. A liquid crystal display device according to claim 25, wherein an insertion member having a pin shape with a head formed separately from the mold frame is utilized as the first columnar member, and the insertion member is fitted into a hole formed at the recessed portion in the side wall of the mold frame.

33. A liquid crystal display device according to claim 32, wherein a side wall of the head of the insertion member provides a positioning guide for the liquid crystal panel.

34. A liquid crystal display device according to claim 25, wherein a sleeve is fitted on the columnar member into which the first opening of the at least one optical sheet is inserted so as to fix the at least one optical sheet to the mold frame by inserting the first opening thereinto.

Allowed Subject Matter

5. Claims 25 – 34 are allowed.

6. The following is an examiner's statement of reasons for allowance.

Kim et al. (US 6,175,396) teaches a liquid crystal display module comprising: a backlight which includes at least one optical sheet and a mold frame which holds the at least one optical sheet to be opposite to one of main surfaces of the liquid crystal panel in an opposed manner.

The prior art does not fairly teach or suggest in combination with the other claimed limitations, wherein the at least one optical sheet is extended along a first direction and a second direction which is transverse to the first direction, has a first side thereof extended along the first direction and a second side thereof extended along the second direction, has a projecting portion protruded from the first side thereof in which a first opening is formed and a projecting portion protruded from the second side thereof in which a second opening is formed; wherein the mold frame has a side wall formed at a first periphery thereof, a recessed portion formed in the side wall, and a first columnar member provided in the recessed portion, the projecting portion of the at least one optical sheet being inserted into the recessed portion so that the first columnar member passes through the first opening of the at least one optical sheet; wherein the mold frame has a second columnar member provided at a second periphery thereof through which the second opening of the at least one optical sheet passes; wherein the first

opening of the at least one optical sheet has a shape which enables the at least one optical sheet with respect to the mold frame to pass the first columnar member through the first opening; and wherein the second opening of the at least one optical sheet has a length which is extended longer in the first direction than a length in the second direction so as to hold the at least one optical sheet with respect to the mold frame by passing the second columnar member through the second opening loosely in contrast to the first opening.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hirakata (US 6,191,833) teaches a liquid crystal display device having reflection between the prism sheet and the liquid panel.

Yarita (US 6,411,353) teaches a liquid crystal display device with its upper and lower cases clamped by crimping portions.

Ueda et al. (US 5,838,412) teaches a liquid crystal display device with a flip chip technology.

Middletown et al. (US 6,091,474) teaches a display assembly with a mounting assembly.

Ayres (US 6,068,381) teaches a back lighting device with a central frame member.

Motoi (US 4,614,406) teaches liquid crystal display device with a light transmissive carrier.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Vesperman whose telephone number is 571-272-1701. The examiner can normally be reached on Mon. - Fri., 8:00 - 4:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl White, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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August 3, 2004


Chandra Chaudhari
Primary Examiner